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Bernd Bartenbach

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EXAMINER

BOYER, RANDY

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/806,191	Applicant(s) BARTENBACH ET AL.	
	Examiner RANDY BOYER	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Examiner acknowledges Applicant's response filed 9 November 2007 containing amendments to the claims and remarks.
2. Claims 1-8 and 10-21 are pending.
3. Examiner acknowledges that Applicant's amendment to claims 8 and 20 are sufficient to overcome the previous rejections under 35 U.S.C. 112, second paragraph. Likewise, Applicant's amendment to claim 20 is sufficient to overcome the previous rejection under 35 U.S.C. 101.
4. The previous rejections of claims 1-7 and 20 under 35 U.S.C. 103(a) are maintained.
5. The previous rejections of claims 8 and 10-19 under 35 U.S.C. 103(a) are withdrawn in view of Applicant's amendment to the claims.
6. New grounds for rejection of claims 8 and 10-19, necessitated by Applicant's amendment to the claims, are entered under 35 U.S.C. 103(a). Likewise, newly added claim 21 is rejected under 35 U.S.C. 103(a). The rejections follow.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been

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obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1-8 and 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gravley (US 4,765,964). Alternatively, claims 1-8, and 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gravley (US 4,765,964), as evidenced by Voll (Voll et al., "Carbon Black" in: *Ullmann's Encyclopedia of Industrial Chemistry* (1986 ed.), vol. A5, pp. 144-148).

11. With respect to claim 1, Gravley discloses a process for carrying out a high-temperature reaction, in which starting materials are supplied to a reaction chamber

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through channels of a burner block (see Gravley, column 3, lines 15-16), where in the reaction chamber the high-temperature reaction having a short residence time takes place at a temperature of at least 1500°C (see Gravley, column 7, lines 56-60) and the reaction mixture is subsequently rapidly cooled in the quench area (see Gravley, column 6, lines 37-39), characterized in that in the quench area firstly a direct cooling takes place by supply of an evaporating quench medium.

Gravley does not disclose wherein the direct cooling results in a lowering of the temperature to the range from 650°C to 1200°C nor that such direct cooling is followed by indirect cooling in a heat exchanger.

However, such process conditions are known in the art for the same type of process that Gravley discloses. For example, Voll discloses a process whereby direct cooling results in a lowering of the temperature to 800°C (see Voll, page 146) followed by indirect cooling in a heat exchanger (see Voll, page 147).

Therefore, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to operate the process of Gravley at conditions whereby indirect cooling resulted in a lowering of the temperature to the range from 650°C to 1200°C followed by indirect cooling in a heat exchanger.

12. With respect to claim 2, Gravley discloses wherein the starting materials are premixed (see Gravley, column 3, lines 24-27).

13. With respect to claim 3, Voll discloses direct cooling resulting in a lowering of the temperature to 800°C (see Voll, page 147).

14. With respect to claim 4, Gravley discloses wherein direct cooling takes place in one stage (see Gravley, column 6, lines 37-43).

15. With respect to claim 5, Gravley discloses wherein the quench medium is water (see Gravley, column 6, lines 51-54).

16. With respect to claim 6, Voll discloses indirect cooling to a temperature less than 300°C (see Voll, page 147).

17. With respect to claim 7, Voll discloses wherein the indirect cooling is utilized for the generation of steam (see Voll, page 147).

18. Claims 8, 10-19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gravley (US 4,765,964) in view of Bakker (US 3,640,739). Alternatively, claims 8, 10-19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gravley (US 4,765,964) in view of Bakker (US 3,640,739), as evidenced by Voll (Voll et al., "Carbon Black" in: *Ullmann's Encyclopedia of Industrial Chemistry* (1986 ed.), vol. A5, pp. 144-148) and Toombs (US 6,349,678).

19. With respect to claim 8, Gravley discloses a process for carrying out a high-temperature reaction, in which starting materials are supplied to a reaction chamber through channels of a burner block (see Gravley, column 3, lines 15-16), where in the reaction chamber the high-temperature reaction having a short residence time takes place at a temperature of at least 1500°C (see Gravley, column 7, lines 56-60) and the reaction mixture is subsequently rapidly cooled in the quench area (see Gravley, column 6, lines 37-39), characterized in that in the quench area firstly a direct cooling takes place by supply of an evaporating quench medium, and characterized in that all

surfaces restricting the reaction chamber are formed of a fire-resistant ceramic having an alumina content of at least 80% by weight (see Gravley, column 5, lines 49-53).

Gravley does not disclose wherein the fire-resistant ceramic is introduced into the reaction chamber in the form of stones or bricks or as a cast or tamped mass and subsequently compressed, dried, and calcined.

However, Bakker discloses a refractory material made from a high purity alumina refractory brick batch mix consisting of 85% – 95% alumina by weight (see Bakker, column 2, lines 10-12). Bakker discloses that the refractories of his invention are of increased strength, higher density, lower porosity, and higher refractoriness than other refractories commercially available (see Bakker, column 1, lines 62-67). Bakker further discloses whereby the alumina refractory (“fire-resistant ceramic”) is shaped into bricks, compressed, dried, and calcined (see Bakker, column 3, lines 58-70).

Therefore, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to line the inside of the reaction chamber of Gravley with the fire-resistant alumina refractory of Bakker so as to provide a more durable refractory sufficient for use under high reaction temperatures.

20. With respect to claim 10, Bakker discloses pressing the refractory mix into any desired shape (see Bakker, column 3, lines 58-59).

21. With respect to claims 11 and 12, Gravley discloses a transition of the reaction chamber to quench area designed in the form of an annular gap having a width in the range from 2 to 200 mm (see Gravley, column 6, lines 31-34, and column 10, line 39).

22. With respect to claim 13, Gravley discloses a reaction chamber designed in the form of an annular gap (see Gravley, Figure).

23. With respect to claims 14 and 15, Gravley discloses channels in the burner block aligned in the direction of the longitudinal axis of the reaction chamber (see Gravley, Figure).

24. With respect to claim 16, Gravley discloses a quench area constructed with alignment in the direction of the longitudinal axis of the reaction chamber (see Gravley, Figure).

25. With respect to claims 17 and 18, Gravley discloses the supply of quench medium via quench nozzles attached to one or more distributors arranged radially to the main flow direction of the reaction mixture (see Gravley, Figure).

26. With respect to claim 19, Gravley discloses a process for the scale-up of a reactor characterized in that for a throughput enlargement the internal diameter of the reactor is enlarged and the gap size at the transition from the reaction chamber to the quench area is kept constant (see Gravley, Table I, runs 8 and 9).

27. With respect to claims 20 and 21, acetylene is a known product of the partial combustion of methane with oxygen. Thus, Gravley provides an inherent disclosure for a method for the preparation of acetylene by partial oxidation of hydrocarbons using oxygen (see e.g., Toombs (US 6,349,678), column 1, lines 24-37).

Response to Arguments

28. Applicant's arguments filed 9 November 2007 have been fully considered but they are not persuasive.

29. Examiner understands Applicant's principal arguments to be:

- I. "Passage" (16) of Gravley bears no resemblance to "channels" of a burner block according to Applicant's specification.
- II. The "throat" of Gravley bears no resemblance to the "gap" according to Applicant's specification.
- III. Gravley does not disclose supplying a reaction mixture through "channels" of a burner block, but rather through a "passage."
- IV. Gravley does not disclose a "gap," but rather a "throat."
- V. Only the pyrolysis zone of Gravley is specifically described as being constructed from heavy-duty refractory.
- VI. Gravley does not disclose acetylene as a product of the reaction.
- VII. Gravley does not disclose introducing fire-resistant ceramic into the reaction chamber in the form of stones or blocks or as a cast or tamped mass, which is subsequently compressed, dried and calcined.
- VIII. Bakker does not disclose the introduction of fire-resistant ceramic in the form of stones or blocks or as a cast or tamped mass, which is subsequently compressed, dried and calcined.

30. With respect to Applicant's first through fourth arguments, Examiner finds such arguments unpersuasive inasmuch as the court has specifically held that it is improper to read limitations from a preferred embodiment described in the specification into the

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claims absent a clear indication that the patentee intended the claims to be so limited. See Liebel-Flarsheim Co. v. Medrad Inc., 69 USPQ.2d 1801, 1807, 1813 (Fed. Cir. 2004) (“[T]his court has expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment.”). Moreover, the court has instructed that ordinary, simple English words (e.g., “gap,” “channels,” etc.) whose meaning is clear and unquestionable, absent any indication that their use in a particular context changes their meaning, are construed to mean exactly what they say. See MPEP § 2111.01 (citing Chef America, Inc. v. Lamb-Weston, Inc., 69 USPQ.2d 1857 (Fed. Cir. 2004)). In this regard, Examiner notes that the words of a claim are generally not limited to what is shown or disclosed in the specification. See id (citing Liebel-Flarsheim Co. v. Medrad Inc., 69 USPQ.2d 1801, 1807 (Fed. Cir. 2004)).

Thus, Examiner construes Appellant’s “gap” to be synonymous with “a break or opening” or “an empty space or interval” designed in the form of an annulus. In the context of Appellant’s claim 11, such gap need only be 2 mm (i.e., 0.2 cm or 0.002 m) to satisfy the limitation.

31. With respect to Applicant’s fifth argument, Examiner notes that Gravley’s pyrolysis zone is a “reaction chamber” in the context of Applicant’s claim 8.

32. With respect to Applicant’s sixth argument, see discussion *supra* at paragraph 27.

33. With respect to Applicant’s seventh and eighth arguments, Examiner notes that it is Bakker (and not Gravley) that clearly discloses the introduction of fire-resistant

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ceramic in the form of stones or blocks or as a cast or tamped mass, which is subsequently compressed, dried and calcined (see Bakker, column 3, lines 58-71). Thus, such argument is not persuasive because one cannot show nonobviousness by attacking references *individually* where the rejections are based on *combinations* of references. See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

34. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office Action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randy Boyer whose telephone number is (571) 272-

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7113. The examiner can normally be reached Monday through Friday from 10:00 A.M. to 7:00 P.M. (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola, can be reached at (571) 272-1444. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RPB

/Glenn A Caldarola/

Acting SPE of Art Unit 1797